

Comparison of overall and cancer-specific survival after nephron-sparing surgery and radical nephrectomy in treating 4- to 7-cm renal cell carcinoma

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Cholstauskas G. , Venclovas Ž. , Vaitiekūnas E. , Milonas D.

Hospital of Lithuanian University of Health Sciences, Dept. of Urology, Kaunas, Lithuania

Introduction & Objectives: An increasing body of evidence has indicated no difference in overall survival (OS), cancer-specific survival (CSS) between patients undergoing nephron-sparing surgery (NSS) and radical nephrectomy (RN). The aim of our study was to compare OS and CSS following NSS and RN for Renal Cell Carcinoma (RCC) 4 to 7 cm in diameter.

Materials & Methods: A retrospective review of the RCC database. Patients, who had solitary RCC measuring 4 to 7 cm and underwent NSS or RN for elective indications between January 2000 and December 2017, were included. OS and CSS were evaluated. Statistical data analysis was performed by using the SPSS 20.0 software. OS and CSS were established using the Kaplan-Meier method. The effect of potential risk factors (age, sex, status according to the American Society of Anesthesiologists (ASA) criteria, the grade of differentiation (G), histological type) on survival was evaluated using a multivariate Cox regression model. The level of statistical significance was set $P < 0.05$. The retrospective study was reviewed and approved by Ethics committee.

Results: 350 patients underwent surgery for RCC measuring 4 to 7 cm: 277 patients (79.1%) underwent RN, and 73 patients (20.9%) - NSS. In total, 108 patients (30.9%) died during the study: 98 patients (35.4%) died in the RN group, and 10 patients (13.7%), in the NSS group ($P=0.06$). The 5 and 10-year OS in patients who underwent NSS was 91.6% and 57.3%, respectively, and in the RN group, 79%, and 60.6%, respectively (log-rank test $P=0.129$). In the NSS group, the 5-year CSS was 97.2%, and the 10-year CSS, 97.2%. In the RN group, the 5-year CSS was 89.1%; and 10-year CSS, 84.1% (log-rank test $P=0.07$). We found, that subjects' gender increased the risk of death by 1.024-fold, the ASA class or G by one point increased the risk of death by 1.701- and 1.38-fold, respectively. CSS was significantly affected by the subjects' G and ASA functional class. The most significant factor that increased the risk of death by 1.743-fold was tumor G.

Conclusions: Our study showed that NSS is a safe technique compared with RN that ensures similar OS in the treatment of RCC measuring 4 to 7 cm. Better CSS was in NSS group. However, we were unable to prove statistical significance in OS and CSS. The main factors, that affect OS and CSS after NSS and RN, are tumor differentiation grade and ASA class.